

(19) World Intellectual Property
Organization
International Bureau



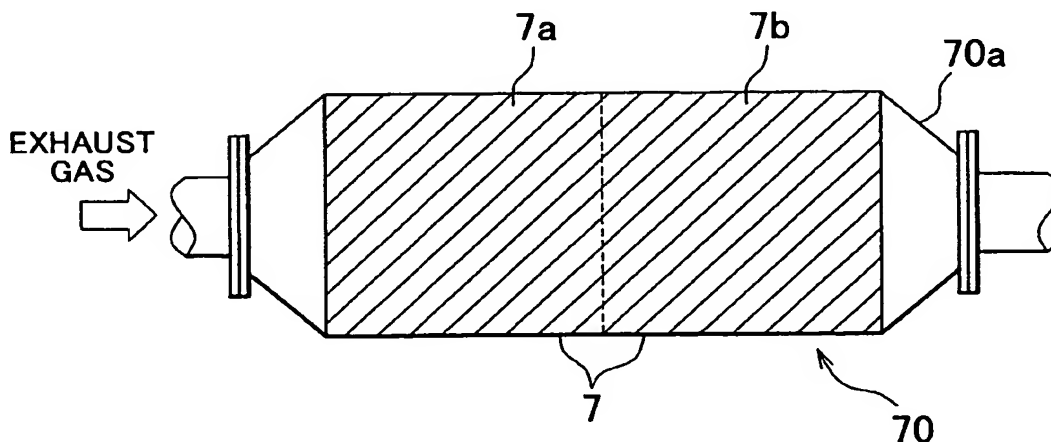
(43) International Publication Date
28 April 2005 (28.04.2005)

PCT

(10) International Publication Number
WO 2005/038208 A1

- (51) International Patent Classification⁷: **F01N 03/08**
- (21) International Application Number:
PCT/IB2004/003353
- (22) International Filing Date: 14 October 2004 (14.10.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2003-356697 16 October 2003 (16.10.2003) JP
- (71) Applicant (for all designated States except US): **TOYOTA JIDOSHA KABUSHIKI KAISHA [JP/JP]**; 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **MIYASHITA, Shigeki [JP/JP]**; Toyota Jidosha Kabushiki Kaisha, 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: EXHAUST GAS CONTROL APPARATUS FOR INTERNAL COMBUSTION ENGINE



(57) Abstract: A converter (70) which houses a NO_x storage/reduction catalyst is provided in an exhaust passage (2) of an engine (1). At a front half portion (inlet side portion) (7a) of a carrier of the NO_x storage/reduction catalyst in the converter (70), the amount of an oxygen storage component is made less than it is at a rear half portion (outlet side portion) (7b) of the carrier, and a NO_x storage capacity is made larger than it is at the rear half portion (7b) of the carrier. As a result, unpurified NO_x released from the front half portion (7a) of the carrier at the beginning of a rich spike due to an O₂ storage operation is able to be stored in the rear half portion (7b) of the carrier, and so is not exhausted outside the catalyst. Moreover, the amount of HC and CO components in the exhaust gas that are needlessly consumed by the O₂ storage operation without being used to purify NO_x is reduced, making it possible to purify NO_x efficiently.